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| 10/648,356 | 08/27/2003 | Nobumasa Okada | 031079 | 3407 |

23850 7590 11/17/2005

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

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| EXAMINER |
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IVEY, ELIZABETH D

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| ART UNIT | PAPER NUMBER |
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1775

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,356

Applicant(s)

OKADA ET AL.

Examiner

Elizabeth Ivey

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 10 is objected to because of the following informalities: Claim 10 is not commensurate with the specification, as the specification does not provide antecedent basis for a layer interposed between a first and second layer. The only mention of a layer interposed between layers is on page 7 where a layer is interposed between the layer of magnesium fluoride defined on page 5 as a third layer and the layer of titanium nitride defined on page 5 as a second layer. Applicant should amend the specification to include such antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 8, applicant claims the thickness of the third layer as $\frac{1}{4}$ wavelength but does not define the wavelength; therefore the scope of the claims with respect to thickness cannot be determined.

Regarding claims 16-18, claims merely setting forth physical characteristics desired in an article, and not setting forth specific compositions which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics. The recitation of merely optical characteristics in claims 16-18 are too broad and indefinite since they purport to cover everything which will perform the desired functions regardless of their composition, and, in effect, recite the invention by what it is desired that it does rather than what it is.—*Ex parte Slob* 157 USPQ 172.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8-14 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

2001/0031365A1 to Anderson et al.

Regarding claims 8, 9 and 13, Anderson discloses optical multilayer or laminated antireflective films of alternating high and low index of refraction materials (page 2 paragraph [0026] and page 4 paragraph [0041]), creating a plurality of reflection planes. Anderson discloses that the high index of refraction layers, one of which may be considered the second layer, may be titanium oxynitride (page 2 paragraph [0029]. Anderson discloses (page 2 paragraph [0017]) that the low index of refraction layers in the antireflective film may be one or more of materials, such as magnesium fluoride, and silicon oxide. Anderson discloses low index of refraction layers having thicknesses that would be considered less than $\frac{1}{4}$ of some wavelength (examples page 7).

Regarding claim 10, Anderson discloses multiple layers (page 2 paragraph [0041]) allowing for a layer, to be interposed between what may be considered the first (low index) and second (high index) layers.

Regarding claim 11, Anderson discloses (page 2 paragraph [0017]) that the low index of refraction layers in the antireflective film may be one or more of silicon oxide, aluminum oxide, aluminum oxyfluoride, aluminum fluoride, and magnesium fluoride.

Regarding claim 12, Anderson discloses (page 2 paragraph [0017]) that the low index of refraction layers in the antireflective film may be silicon oxide as a first layer option.

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Regarding claim 14, claim 14 is a product by process claim and the patentability of the product does not depend on its method of production. "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See MPEP 2113. As such, the process limitation within claim 14 does not provide patentable distinction over the prior art.

Regarding claim 20, in table 1 Anderson discloses a film with a fourth layer having a higher index of refraction than the first layer.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2001/0031365 A1 to Anderson et al. as applied to claim 8 above, in view of U.S. Patent 6,222,967 B1 to Amano et al.

Regarding claim 15, Anderson discloses all of the aspects of claim 8 but does not disclose a resin sealing at least the light incident plane. Amano discloses a resin sealing structure of an optical module (column 31 lines 2-11) on a device such as an optical semiconductor (column 1 lines 55-59). Amano discloses this is important to seal the device to achieve reliability (column 1 lines 31-32). It would therefore be obvious to a person of ordinary skill in the art at the time of the invention to combine the resin seal of Amano with the disclosure of Anderson to create a reliable optical product.

Claims 16-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2001/0031365 A1 to Anderson et al.

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Regarding claims 16-17 and 19, Anderson discloses optical multilayer or laminated antireflective films of alternating high and low index of refraction materials (page 2 paragraph [0026] and page 4 paragraph [0041]), creating a plurality of reflection planes. Anderson discloses the high index of refraction layers, one of which may be considered the second layer, may be the high index of refraction material titanium oxynitride (page 2 paragraph [0029]. Anderson discloses (page 2 paragraph [0017]) that the low index of refraction layers in the antireflective film may be one or more of materials such as magnesium fluoride, and silicon oxide among other materials. Anderson discloses low index of refraction layers having thicknesses that would be considered less than $\frac{1}{4}$ of some wavelength (examples page 7).

Although neither Anderson does not specifically disclose the optical characteristics, such as optical transmission, exhibited by either causing or not causing a refractive index difference between an outermost layer and the air or an inert gas and neither show the characteristics to be the same, and neither disclose optical characteristics where another material is provided in contact with the outer most layer of the optical multilayer film, because the composition and structure of the device in the applicant's disclosure is the same as the disclosure in the combined prior art, the device would inherently exhibit the properties, such as optical transmission of the claimed inventions in claims 16 and 17. *MPEP 2112.02*.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2001/0031365 A1 to Anderson et al. as applied to claim 8 above, in view of U.S. Patent 6,222,967 B1 to Amano et al.

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Regarding claim 18, Anderson discloses all of the aspects of claim 16 but does not disclose a resin. Amano discloses a resin sealing structure of an optical module (column 31 lines 2-11) on an optical device (column 1 lines 55-59). Amano discloses this is important to seal the device to achieve reliability (column 1 lines 31-32). It would therefore be obvious to a person of ordinary skill in the art at the time of the invention to combine the resin seal of Amano with the disclosure of Anderson to create a reliable optical product.

Response to Arguments

The examiner acknowledges applicant's amendments to the specification and cancellation of claims 1-7 and withdraws the objection to the specification and the objections and rejections to claims 1-7.

Applicant's arguments with respect to the art rejections of claims 8-20 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the objection to claim 10, applicant has not shown that the specification provides antecedent basis for a layer interposed between a first and second layer as claimed in claim 10.

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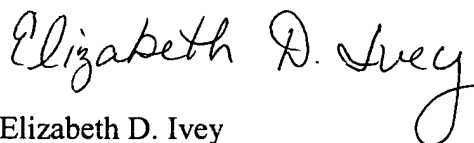
Regarding applicant's argument that Anderson does not disclose the claimed layered structure in an optical semiconductor, the assertion of the optical semiconductor device is part of the preamble and in accordance with MPEP 2111.02 is entitled to very little patentable weight.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Ivey whose telephone number is (571) 272-8432. The examiner can normally be reached on 7:00- 4:30 M-Th and 7:00-3:30 alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571)272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Elizabeth D. Ivey


DEBORAH JONES
SUPERVISORY PATENT EXAMINER